

TABLE 10

Domestic R&D paid for by the company and others and performed by the company, by type of cost, industry, and company size: 2019

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Royalties and licensing fees	Other purchased services (except R&D)	Other
All industries	21–23, 31–33, 42–81	492,956	267,998	39,045	21,352	7,190	34,426	8,236	18,861	9,238	16,879	69,732
Manufacturing industries	31–33	285,674	145,807	11,847	10,640	3,567	29,600	4,202	12,419	8,878	10,459	48,253
Food	311	4,180	2,582	69	92	14	470	72	181	1	186	514
Beverage and tobacco products	312	1,082	562	10	44	3	91	12	52	0	72	237
Textile, apparel, and leather products	313–16	904	569	17	22	10	198	5	14	*	12	57
Wood products	321	186	144	0	4	*	21	9	2	0	2	5 i
Paper	322	1,064	435	* i	6 i	1 i	485	7 i	8 i	1 i	12 i	108
Printing and related support activities	323	420 i	285 i	0	4 i	1	64	8 i	5	* i	7	46
Petroleum and coal products	324	1,306	666	*	17	7	41	4	40 - 49	*	295	223 - 239
Chemicals	325	97,063	40,466	4,582	5,557	719	8,598	1,552	3,961	7,410	4,904	19,314
Basic chemicals	3251	2,360	1,381	4	43	18	242	42	167	23	146	294
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,172	789	1	46	2	99	14	73	3	53	94
Pesticide, fertilizer, and other agricultural chemicals	3253	1,822 - 1,846	951	*	257	2	162	109	104 - 133	27	64	128 - 160
Pharmaceuticals and medicines	3254	87,619	34,813	4,565	5,124	686	7,834	1,346	3,451	7,357	4,601	17,843
Soap, cleaning compound, and toilet preparation	3256	2,760	1,645	12	75	1	161	26	97	*	23	719
Paint, coating, adhesive, and other chemicals	3255, 3259	1,305 - 1,333	887	*	13	10	100	15	42 - 71	*	18	203 - 234
Plastics and rubber products	326	2,856	1,655	22	49	44	458	20	85	6	97	420
Nonmetallic mineral products	327	1,508 i	847 i	6	15	20 i	227 i	20 i	61 i	0	47 i	265 i
Primary metals	331	665	370	4	5	3	161	1	27	4	39	51
Fabricated metal products	332	2,885	1,891	58	106	44	422	16	47	9	44	249 i
Machinery	333	15,184	8,772	262	581	134	2,129	183	605	35	331	2,154
Agricultural implement	33311	1,921	1,037	0	136	4	256	6	35	3	41	403
Semiconductor machinery	333242	4,459	2,337	201	27	5	509	119	351	*	148	762
Engine, turbine, and power transmission equipment	3336	1,301	778	5	21	19	142	13	50	11	14 i	248
Other machinery	other 333	7,503	4,620	56	397	105 i	1,222	45	168	21	129	741 i
Computer and electronic products	334	86,729	45,997	6,253	1,629	1,566	6,111	1,766	5,366	777	2,424	14,840
Communications equipment	3342	12,595	7,468	705	401	187	306	931	574	17	186	1,820

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Semiconductor and other electronic components	3344	35,183 i	17,781 i	1,754 i	459 i	301 i	2,628 i	319 i	2,784 i	460 i	504 i	8,193 i
Navigational, measuring, electromedical, and control instruments	3345	17,562	11,240	346	574	204	1,982	140	333	10	371	2,362
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,342	1,899	191	137	46	193	76	73	2	180	546
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	9,662	6,346	66	345	76	1,400	34	162	5	73	1,155
Other measuring and controlling device	other 3345	4,558	2,995	89	92	82	390	31	98	3	118	660
Other computer and electronic products	other 334	21,388	9,509	3,447	195	874	1,195	375	1,675	290	1,363	2,465
Electrical equipment, appliances, and components	335	5,263	3,331	106	230	65	483	103	135	10	176	625
Transportation equipment	336	45,375	26,379	18	1,448	571	8,120 i	303	1,153	504	769	6,108
Motor vehicles, bodies, trailers, and parts	3361-63	24,117	15,202	3	1,123	514	3,288	261	967	471	183	2,104
Aerospace products and parts	3364	18,358 i	9,332 i	3 - 6	244	35	4,328 i	19 i	139 - 165	4	521	3,701 - 3,735
Aircraft, aircraft engine, and aircraft parts	336411-13	16,891 i	8,528 i	3	176	33	4,051 i	13 i	133	4	501	3,450
Guided missile, space vehicle, and related parts	336414-15, 336419	1,467	805	0 - 3	68	2	277	5	6 - 32	1	20	251 - 285
Military armored vehicle, tank, and tank component	336992	35	20 - 30	* i	0 - 9	* i	5	0 - 9	*	* i	* i	0 - 10
Other transportation	other 336	2,865	1,814 - 1,825 i	9 - 13	71 - 83	21 i	499 i	13 - 25	22 - 48 i	28 i	65 i	258 - 304 i
Furniture and related products	337	409	290	3	11	1	50	2	8	3	6	35
Miscellaneous	339	18,596	10,567	438	820	365	1,472	120	666 - 674	119	1,035	2,983 - 2,997
Medical equipment and supplies	3391	16,014	8,767	422	731	315	1,208	99	623	70	1,005	2,775
Other miscellaneous manufacturing	3399	2,582	1,800	15	89	51	263	21	43 - 52	50	30	209 - 223
Nonmanufacturing industries	21-23, 42-81	207,283	122,191	27,198	10,711	3,623	4,826	4,034	6,442	359	6,420 i	21,479
Mining, quarrying, oil and gas extraction, and support activities	21	2,717	1,636	0 - 292	158	17	333	35	92	2	78	77 - 370
Utilities	22	275	113	*	9	1	8	1	0 - 100	3	23	17 - 121
Wholesale trade	42	1,191	777	3 i	26 i	2 i	68 i	26	18	* i	7 i	264 i

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Electronic shopping and electronic auctions	454111-12	3,131 - 15,818	i 16 - 9,465	i 0 - 2,447	i 117	i 0 - 192	i 57	i 0 - 228	i 0 - 793	i 0	i 5	i 0 - 4,141
Transportation and warehousing	48-49	9,890	i 3,310	i 4,683	i 521	i 51	i 156	i 94	i 71	i 34	i 290	i 680
Information	51	110,227	65,595	18,499	5,766	2,571	796	2,806	3,099	230	1,805	9,061
Publishing	511	33,019	21,046	4,001	1,576	281	432	334	382	91	1,279	3,596
Newspaper, periodical, book, and directory publishers	5111	61	55	* i	2	1	*	*	*	0	1	2
Software publishers	5112	32,958	20,991	4,001	1,574	281	432	334	382	91	1,279	3,594
Telecommunications	517	3,733	2,742	39	609	15	79	40	33	1	128	45
Data processing, hosting, and related services	518	30,558	20,672	4,005	736	382	212	609	492	120	309	3,020
Other information	other 51	42,917	21,134	10,453	2,844	1,894	73	1,823	2,191	16	89	2,400 i
Finance and insurance	52	8,917	5,644	357	1,778	114	41	43	534	i 11	72	324
Real estate and rental and leasing	53	1,371	887	102	53	49	3	2	2 - 258	0	0	19 - 275
Lessors of nonfinancial intangible assets (except copyrighted works)	533	45	17	2	1	1	1	*	3	0	0	20
Other real estate and rental and leasing	other 53	1,326	870	100	53	48	2	2	0 - 255	0	0	0 - 255
Professional, scientific, and technical services	54	53,233	33,455	1,055	1,793	601	2,951	764	1,801	74	4,074 i	6,665
Architectural, engineering, and related services	5413	4,207	3,120	6	88	16	390	35	21	5	187	341
Computer systems design and related services	5415	21,046	14,921	721	717	346	494	191	722	23	337	2,575
Scientific research and development services	5417	21,669	10,899	201	686	136	1,665	428	838	i 36	3,407	i 3,373
Research and development in biotechnology	541711	6,457	3,051	70	177	16	453	119	181	19	1,298	i 1,072
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	14,446	i 7,249	115	490	113	1,199	287	641	i 17	2,083	i 2,252
Research and development in the social sciences and humanities	541720	766	599	i 16	19	6	13	22	15	0	27	i 48
Other professional, scientific, and technical services	other 54	6,312	4,515	128	303	103	403	110	220	10	143	376
Health care services	621-23	2,265	1,309	55	233	30	303	37	35	1	33	229

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Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55– 56, 624, 71–72, 81	1,380 - 14,067	0 - 9,453	0 - 2,447	257 i	0 - 192	110	0 - 230	0 - 794	5	32	0 - 4,146 i
All companies (number of domestic employees)	–	492,956	267,998	39,045	21,352	7,190	34,426	8,236	18,861	9,238	16,879	69,732
Small companies												
10–19 ^a	–	5,501	3,210	57	i 314	61	723	99	113	42	318	565 i
20–49	–	12,418	7,929	175	436	88	1,222	301	221	58	416	1,573
Medium companies												
50–99	–	14,021	8,026	416	495	134	1,471	323	270	321	836	1,731
100–249	–	19,793	12,233	718	712	202	1,946	363	466	150	881	2,121
Large companies												
250–499	–	18,883	11,044	933	826	376	1,859	366	413	119	626	2,319
500–999	–	23,969	13,514	1,167	1,107	239	1,766	462	739	1,297	627	3,051
1,000–4,999	–	75,671	43,445	7,191	2,589	964	4,453	1,099	2,745	742	2,795	9,649
5,000–9,999	–	50,811	26,130	2,833	2,180	438	2,990	796	2,268	4,341	1,344 i	7,490
10,000–24,999	–	88,263	45,843	7,329	3,928	936	6,456	847	4,058	833	4,783 i	13,250
25,000 or more	–	183,626	96,626	18,225	8,764	3,752	11,542	3,582	7,567	1,334	4,253	27,982

* = amount < \$500,000; i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

^a The Business Enterprise Research and Development Survey does not include companies with fewer than 10 domestic employees.**Note(s):**

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. This change has affected the comparability of these estimates with estimates published for years prior to 2018. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2019.